LESSON 4.1

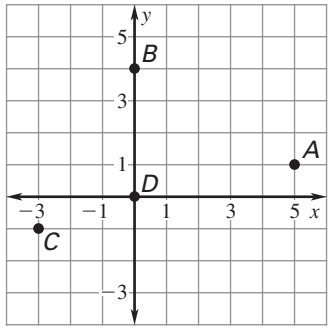
NAME _____ DATE _____

Practice B

For use with pages 203–208

Write the ordered pairs that correspond to the points labeled *A*, *B*, *C*, and *D* in the coordinate plane.

1.



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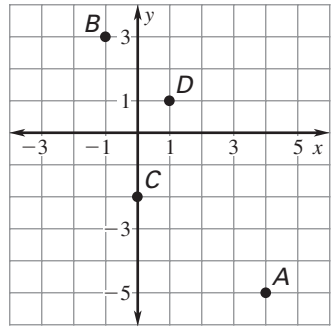

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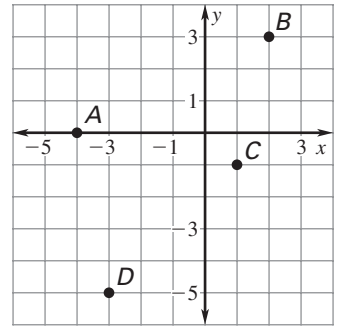


Plot and label the ordered pairs in a coordinate plane.

4. $(3, 6), (-2, 5), (2, 2)$

5. $(-3, -3), (2, -5), (1, 0)$

6. $(3, -1), (-4, -1), (-1, 6)$

7. $(5, 2), (-5, 0), (-3, 2)$

8. $(0, 3), (4, -4), (-2, -4)$

9. $(-1, 1), (0, -1), (4, 2)$

10. ***Inches to Centimeters*** The table shows some measurements in inches and the corresponding measurement in centimeters. Make a scatter plot of the data. Let each ordered pair have the form (i, c).

i	1	5	10	15	20
c	2.54	12.7	25.4	38.1	50.8

11. ***Quiz Grades*** The following table shows various quiz grades for an algebra class and how many students received each grade. Make a scatter plot of the data. Use the horizontal axis to represent the grade.

Grade	0	1	2	3	4	5	6	7	8	9	10
Number of students	0	0	2	1	1	2	4	3	12	7	4

12. ***U.S. Representatives*** The 1995 population, P (in millions), for eight states is shown in the table below. The number of U.S. representatives, R, for each state is given. Make a scatter plot of the data.

State	ID	NE	AR	CT	MD	WA	MA	VA
Population, P (in millions)	1.2	1.6	2.5	3.3	5.0	5.4	6.1	6.6
Number of U.S. representatives, R	2	3	4	6	8	9	10	11

13. ***Interpreting Data*** In the Population vs. U.S. representatives graph you made in Exercise 12, describe the relationship between population and the number of U.S. representatives.

LESSON 4.2

NAME _____ DATE _____

Practice B

For use with pages 210–217

Decide which of the two points lies on the graph of the line.

1. $2x + 4y = 8$
a. $(2, 1)$ **b.** $(1, 2)$

2. $3x - y = 8$
a. $(2, 2)$ **b.** $(3, 1)$

3. $4y - 3x = -7$
a. $(3, 3)$ **b.** $(-1, 1)$

4. $y = 4$
a. $(4, 2)$ **b.** $(2, 4)$

5. $x = -3$
a. $(-3, 2)$ **b.** $(3, -3)$

6. $x = 0$
a. $(0, 3)$ **b.** $(-1, 0)$

7. $y = 4x - 2$
a. $(-1, -6)$ **b.** $(0, 2)$

8. $y = \frac{1}{2}x + 3$
a. $(-2, 4)$ **b.** $(0, 3)$

9. $y = -3(x + 1)$
a. $(-1, -6)$ **b.** $(-2, 3)$

Find three different ordered pairs that are solutions of the equation.

10. $y = 2x + 1$

11. $x = 5$

12. $y = -4$

13. $y = 5 - 2x$

14. $y = 3(2x + 4)$

15. $y = -\frac{1}{2}x - 4$

Rewrite the equation in function form.

16. $-2x + y = 6$

17. $x + 4y = -2$

18. $-x + y = 7$

19. $-5x + 2y = -4$

20. $3x - 5y = 1$

21. $-2x - 4y = 0$

Use a table of values to graph the equation.

22. $y = 2x + 1$

23. $y = 3x - 2$

24. $y = -4x + 2$

25. $y = -x - 3$

26. $y = \frac{1}{2}x + 3$

27. $y = -\frac{1}{4}x + 1$

28. $y = 2$

29. $x = -4$

30. $y = 0$

31. $y = -(2 - x)$

32. $y = -x + \frac{3}{2}$

33. $y = -\frac{3}{4}x + \frac{1}{2}$

Summer Income **Use the following information.**

You earn \$15 an hour mowing lawns and \$10 an hour washing windows. You want to make \$400 in one week. An algebraic model for your earnings is $15x + 10y = 400$, where x is the number of hours mowing lawns and y is the number of hours washing windows.

34. Solve the equation for y.

35. Sketch a graph of the equation.

36. If you spent 14 hours mowing lawns one week, how many hours did you have to wash windows to earn \$400?

Distance **Use the following information.**

You are 455 miles from home and you are driving toward home at a constant rate of 65 miles per hour. The distance d (in miles) away from home after t hours is given by $d = 455 - 65t$.

37. Sketch the graph of the equation from $t = 0$ to $t = 7$.

38. How far from home are you after 3 hours?

LESSON 4.3

NAME _____ DATE _____

Practice B

For use with pages 218–224

Find the *x*-intercept of the graph of the equation.

1. $x + 2y = 5$ **2.** $3x - y = 6$ **3.** $5x + 5y = -30$

4. $6x - 12y = 36$ **5.** $1.5x - 3y = -6$ **6.** $0.8x + 3y = 2.4$

Find the *y*-intercept of the graph of the equation.

7. $y = -3x - 7$ **8.** $y = \frac{1}{2}x + 8$ **9.** $y = x - \frac{2}{3}$

10. $-3x + 2y = 18$ **11.** $4x + 2y = -16$ **12.** $5x - 1.2y = 3.6$

Sketch the line that has the given intercepts.

13. x-intercept: 3
y-intercept: 2

14. x-intercept: 4
y-intercept: -1

15. x-intercept: -2
y-intercept: 5

16. x-intercept: -6
y-intercept: -5

17. x-intercept: $\frac{1}{2}$
y-intercept: -4

18. x-intercept: 10
y-intercept: -6.5

Find the *x*-intercept and the *y*-intercept of the line. Graph the equation. Label the points where the line crosses the axes.

19. $y = x + 6$ **20.** $y = x - 9$ **21.** $y = 1 - x$

22. $y = -2 - x$ **23.** $y = \frac{1}{2}x - 4$ **24.** $y = -0.5x + 5$

25. $-2x - 4y = 20$ **26.** $-4x + 8y = -16$ **27.** $0.3x - 1.3y = 3.9$

Ticket Sales **Use the following information.**

You sold tickets to the school play. Advanced tickets were \$4. Tickets bought at the door were \$5.50. Total ticket sales were \$440. Let x represent the number of advanced tickets sold and y represent the number of tickets sold at the door.

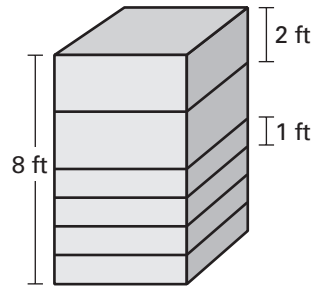
28. Write an equation to represent the number of tickets sold.

29. Graph the equation from Exercise 28.

30. What are three possible numbers of advanced tickets sold and tickets sold at the door?

Stacking Crates **Use the following information.**

As a part of a summer job, you stack crates. The crates have the same length and width, but have heights of 1 or 2 feet. Using a fork lift, you can stack the crates 8 feet high.



31. Make a graph showing the possible number of each type of crate in one stack.

32. If you stacked 3 of the 2-foot crates, how many of the 1-foot crates were in the stack?

LESSON 4.4

NAME _____ DATE _____

Practice B

For use with pages 226–233

Plot the points and draw a line through them. Without calculating, state whether the slope of the line is *positive*, *negative*, *zero*, or *undefined*.

1. $(1, 5), (4, 3)$

2. $(-5, 2), (-5, 4)$

3. $(3, 3), (7, 6)$

4. $(2, 4), (-3, 4)$

5. $(2, -4), (-3, 2)$

6. $(-6, 1), (0, 3)$

Find the slope of the line passing through the given points.

7. $(0, 4), (1, 10)$

8. $(3, 2), (2, 3)$

9. $(5, 2), (3, 8)$

10. $(4, 6), (-2, 6)$

11. $(2, 0), (1, 5)$

12. $(3, -9), (3, 8)$

13. $(2, 9), (-6, -7)$

14. $(-1, 4), (3, -2)$

15. $(7, 2), (-8, -3)$

16. $(4, -2), (-8, -2)$

17. $(-9, 0), (-9, 7)$

18. $(-5, -4), (-3, -9)$

Find the value of *y* so that the line passing through the two points has the given slope.

19. $(2, y), (3, 3), m = 2$

20. $(4, y), (6, 3), m = -2$

21. $(-3, 5), (0, y), m = 3$

22. $(3, 5), (1, y), m = \frac{3}{2}$

23. $(-6, y), (0, 2), m = -\frac{1}{3}$

24. $(5, -1), (-2, y), m = 1$

In Exercises 25 and 26, find the rate of change between the two points. Give the units of measure for the rate.

25. $(2, 20)$ and $(4, 42)$; x in seconds, y in feet

26. $(1, 14)$ and $(3, 40)$; x in weeks, y in dollars

27. ***Postage*** In 1989 a postage stamp cost \$.25. In 1999 a postage stamp cost \$.33. Find the average rate of change in postage in cents per year.

28. ***Calculators*** In 1975 a 4-function calculator cost \$125. In 1995 a 4-function calculator cost \$5. Find the average rate of change in the cost of calculators in dollars per year.

Baseball **In Exercises 29–32, use the following information.**

The table shows the number of home runs in major league baseball from 1990 to 1996.

Year	1990	1991	1992	1993	1994	1995	1996
Home runs	3317	3383	3038	4030	3306	4081	4962

29. Calculate the average yearly rate of change in home runs hit from 1990 to 1992.

30. Calculate the average yearly rate of change in home runs hit from 1992 to 1994.

31. Calculate the average yearly rate of change in home runs hit from 1994 to 1996.

32. ***Extension*** Write a sentence comparing the results of Exercises 29–31 to the average yearly rate of change in home runs hit from 1990 to 1996.

LESSON 4.6

NAME _____ DATE _____

Practice B

For use with pages 241–247

Find the slope and *y*-intercept of the graph of the equation.

1. $y = 7x + 1$

2. $y = -3x - 4$

3. $y = -4$

4. $y - 2x = 3.2$

5. $y = \frac{x + 3}{4}$

6. $2y = 6x + 16$

Graph the equation. If necessary, write the equation in slope-intercept form first.

7. $y = x + 5$

8. $y = 2x - 4$

9. $y = 3 - 2x$

10. $y = \frac{2}{3}x$

11. $y = \frac{1}{2}x - 4$

12. $y = -x - 3$

13. $y = -\frac{4}{5}x - \frac{1}{2}$

14. $y = \frac{x + 2}{3}$

15. $5x - 10y = -20$

16. $2y = 8$

17. $x + 10y - 3 = 7$

18. $2x + 4y = 6x - 6$

Decide whether the graphs of the two equations are parallel lines.

19. $y = 2x - 1, y = -2x + 1$

20. $y = 6x - 7, y = 3 + 6x$

21. $y = \frac{1}{4}x + 5, y = 4x - 7$

22. $y = -\frac{1}{2}x + \frac{3}{2}, y = \frac{8 - x}{2}$

23. $5x + y = -4, y - 5x = 6$

24. $7y = 2x + 7, 7y - 2x + 3 = 0$

Jogging **Use the following information.**

Howard decides to start jogging every day at the track. The first week he jogs 6 laps. He adds 2 laps each week for 8 weeks. Let l represent the number of laps Howard runs and let t represent the time in weeks since he began jogging.

25. Plot points for the number of laps Howard jogs at one week intervals. Draw a line through the points.

26. Find the slope. What does it represent?

Telephone Calls **Use the following information.**

The cost of a long-distance telephone call is \$.85 for the first minute and \$.05 for each additional minute. Let c represent the total cost of a call that lasts t minutes.

27. Plot points for the cost of calls in one minute intervals. Draw a line through the points.

28. Find the slope. What does it represent?

Weight Loss **Use the following information.**

The graph at the right represents the weight loss of a wrestler as he prepares for the state meet.

29. Find the slope of the line. What does it represent?

30. Find the w-intercept. What does it represent?

LESSON 4.7

NAME _____ DATE _____

Practice B

For use with pages 250–255

In Exercises 1–6, match the one-variable equation with its related function.

A. $-3x = 2$ **B.** $-3x - 6 = -2$ **C.** $-5x = -x + 3$

D. $3 = 4x$ **E.** $3x + 3 = 5$ **F.** $2x = -x + 4$

1. $y = 3x - 4$ **2.** $y = -4x - 3$ **3.** $y = -3x - 4$

4. $y = -4x + 3$ **5.** $y = 3x - 2$ **6.** $y = -3x - 2$

Write the equation in the form $ax + b = 0$. Then write the related function $y = ax + b$.

7. $-4 = -5x$ **8.** $2 - 3x = 9$ **9.** $-7 + 4x = 13$

10. $8x - 9 = 2x$ **11.** $-6x + 1 = 10x - 4$ **12.** $6 - \frac{1}{4}x = \frac{3}{4}x - 6$

Solve the equation algebraically. Check your solution graphically.

13. $5x - 14 = -4$ **14.** $-3x + 13 = 1$ **15.** $-x = 3$

16. $6x + 2 = -4x$ **17.** $-12 - 7x = 3x + 8$ **18.** $-\frac{1}{2}x - 9 = -7$

19. $\frac{2}{5}x - 2 = -6$ **20.** $-\frac{3}{4}x + \frac{4}{5} = \frac{1}{4}x - \frac{1}{5}$ **21.** $\frac{1}{3} = 5 - \frac{2}{3}x$

Solve the equation graphically. Check your solution algebraically.

22. $2x + 6 = 4$ **23.** $3 - 8x = -13$ **24.** $4x - 2 = -4x$

25. $3x + 15 = -9 + 7x$ **26.** $-5x + 7 = 2x - 14$ **27.** $\frac{1}{3}x + 2 = -2$

28. ***Fundraiser*** Your school's math club is having a car wash to raise \$600 for a trip. The amount A that the club raised can be modeled by the equation $A = 4.5n - 120$, where n is the number of cars washed. How many cars must the club wash to be able to go on the trip?

29. ***Production Costs*** Joan has a small business printing promotional brochures in her home. Her monthly cost of producing x brochures can be modeled by the function $y = 0.2x + 120$. In July, her cost was \$288. How many brochures did she print that month? Solve algebraically and graphically.

30. ***Geometry*** The line $y = -x + 25$ represents all possible dimensions of a rectangle with a perimeter of 50 centimeters, where x represents the length and y represents the width. What is the length of a rectangle that has a width of 15 centimeters? Solve algebraically and graphically.

31. ***Motion Pictures*** The amount, A (in billions of dollars), spent to see motion pictures from 1990 through 1995 can be modeled by the equation $A = 3.7t + 39.27$, where $t = 0$ represents 1990. According to this model, in what year will the amount spent to see motion pictures reach \$80 billion?

LESSON 4.8

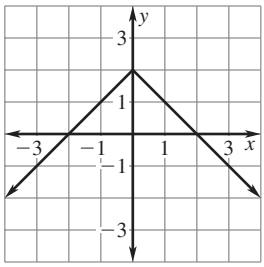
NAME _____ DATE _____

Practice B

For use with pages 256–262

Decide whether the graph represents *y* as a function of *x*. Explain your reasoning.

1.



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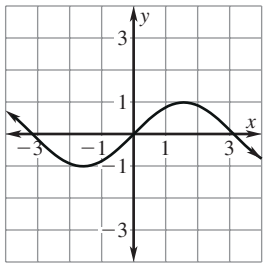

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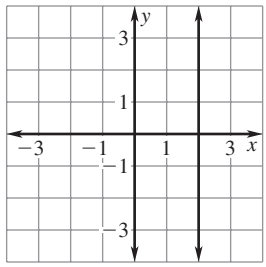
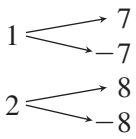
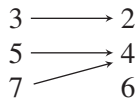


Decide whether the relation is a function. If it is a function, give the domain and the range.

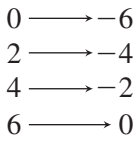
4. Input Output



5. Input Output



6. Input Output



Evaluate the function when $x = 3$, $x = 0$, and $x = -2$.

7. $f(x) = 2x - 5$ **8.** $h(x) = 6x + 2$ **9.** $g(x) = 2.4x$

10. $f(x) = 0.5x + 12$ **11.** $h(x) = \frac{2}{3}x - 1$ **12.** $f(x) = \frac{3}{5}x + 2$

Graph the function.

13. $f(x) = -4x + 3$ **14.** $g(x) = 2x - 5$ **15.** $h(x) = -3x - 1$

16. $g(x) = \frac{1}{4}x + 2$ **17.** $f(x) = -\frac{2}{3}x - 3$ **18.** $h(x) = -x + 4$

Find the slope of the graph of the linear function *f*.

19. $f(2) = 4, f(0) = 6$ **20.** $f(1) = 3, f(3) = 7$ **21.** $f(-2) = 2, f(0) = -4$

22. $f(-1) = -4, f(-2) = 0$ **23.** $f(-3) = 7, f(2) = -3$ **24.** $f(-4) = -1, f(3) = 5$

25. ***Football Attendance*** The table gives the attendance at a football championship for five consecutive years. Is attendance a function of the number of years since 1993? Why, or why not?

Years since 1993	1	2	3	4	5
Attendance	72,817	74,107	76,347	72,301	68,912